

L2(5.2) - Translations of a Quadratic Relation

1. factored form: $y = a(x - s)(x - t)$

2. standard form: $y = ax^2 + bx + c$

3. vertex form: $y = a(x - h)^2 + k$

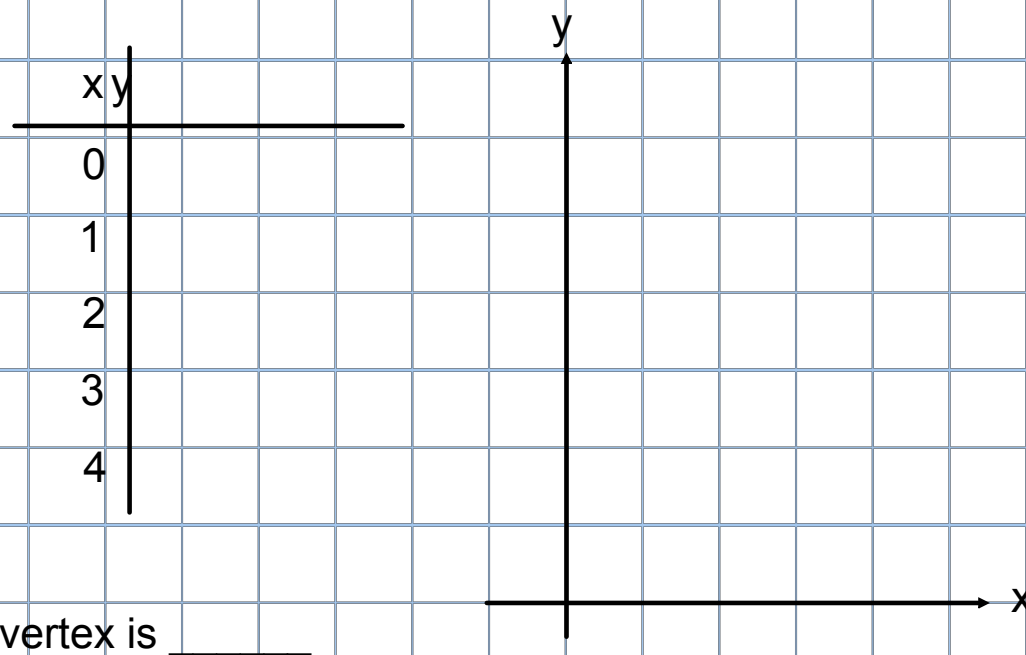
a tells us the **direction of opening** (up or down),
and any **vertical scaling** (stretch or compression)

h is the **x-coordinate** of the vertex.

k is the **y-coordinate** of the vertex.

Mar 20 - 4:17 PM

Ex.1 Graph $y = (x - 2)^2 + 1$ using a TOV.



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The vertex of the parent function, _____, is (0, 0).

If the vertex has moved from (0, 0) to (h, k) then the graph has been

translated _____ (up or down)

and _____ (left or right)

Vertex Form: $y = a(x - h)^2 + k$

What about the signs of h and k?

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Ex.2 State the coordinates of the vertex and direction of opening.

(a) $y = (x - 5)^2 + 4$ Vertex _____ Opens _____

(b) $y = (x + 3)^2 + 11$ Vertex _____ Opens _____

(c) $y = -2(x - 6)^2 - 8$ Vertex _____ Opens _____

(d) $y = \frac{3}{4}(x + 13)^2 - 2$ Vertex _____ Opens _____

(e) $y = -(x - 4)^2 + 5$ Vertex _____ Opens _____

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See Geogebra quadratic translation demo
([click here for link](#))

Nov 10-8:19 AM

Ex. 3. Identify the transformations (in the correct order), the vertex, axis of symmetry, and the direction of opening.

a) $y = (x - 2)^2 - 3$

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$$b) y = 2(x + 4)^2$$

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$$c) y = -0.5x^2 + 4$$

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Assigned Work:

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Nov 10-8:41 AM